

Revision: 01
HGM/2019-20/01

	BHARAT HEAVY ELECTRICAL LIMITED			Enquiry No. :	
	UNIT'S ADDRESS:			Due Date :	
	CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL (FROM PURCHASE DEPTT.)			Supplier Qtn. No.:	
				Date :	

SPECIFICATION CUM COMPLIANCE CERTIFICATE OF PORTABLE BROKEN TOOL REMOVAL MACHINE.

	NOTE:-	<i>Hel</i>			
	1. Vendor must submit complete information against clause no. 18. The offer meeting this clause would only be processed.				
	2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.				
	3. The offer and all documents enclosed with offer should be in English language only.				

NAME & ADDRESS OF THE SUPPLIER :			NAME & ADDRESS OF THE INDIAN AGENT :		
TELEPHONE NOS.:			TELEPHONE NOS.:		
FAX NOS.:			FAX NOS.:		
E-MAIL ADDRESS :			E-MAIL ADDRESS :		

SCOPE: SUPPLY, ERECTION & COMMISSIONING OF PORTABLE BROKEN TOOL REMOVAL MACHINE WITH SPECIFICATIONS AS BELOW:

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1.0 PURPOSE					
1.1	A PORTABLE TOOL BROKEN REMOVAL MACHINE is required for removal of tools broken in Workpiece.	Vendor to Confirm			
1.2	Work piece Material Alloy steel ,Hardness 170-220HBN or 35-63 RC	vendor to confirm			
2.0 SPECIFICATION:					

	Basic equipment: A PORTABLE TOOL BROKEN REMOVAL MACHINE is required for removal of broken tool in job without damaging dimension of machined surface. The machine should remove broken tool from forge case hardened/ non harden steel traction Shafts, stator frame of motor and gernator without damaging dimension of machined surface.	vendor to confirm			
2.1	TECHNICAL Requirement:				
2.1.1	Portabel Broken Tool Remover Machine Make, model	vendor to confirm			
2.1.2	Max.Tip circle diameter/O.D to accomodate 804 mm	vendor to confirm			
2.1.3	Min I.D. to accomodate 100 mm	vendor to confirm			
2.1.4	Maximum Length to accomodate (greater than 400 mm)	vendor to confirm			
2.1.5	Maximum Tap Diameter to be removed 24 mm	vendor to confirm			
2.1.6	Minimum Drill Size to be removed 2.5 mm	vendor to confirm			
2.1.7	Maximum Drill Length to be removed 350 mm	vendor to confirm			
2.1.8	Broken drill and Tap at diferent angle like 15 degree,30 degree etc w.r.t base can be removed	vendor to confirm			
2.1.9	Job Weight to be accomodate (max.) 350 kg	vendor to confirm			
2.2	FEED AND DRIVE SYSTEM: If Providing then details should be Submitted by the Vendor				
2.2.1	Feed drives/ motors for all axes [AC servo motors) shall be digital type of either siemens or Fanuc make (Details of model, make, type etc. to be submitted)	vendor to specify			
2.3	TABLE				
2.3.1	Table size	vendor to specify			
2.3.2	Maximum load carrying capacity	vendor to specify			
2.3.3	Loading of job should be possible by EOT crane from side and top.	vendor to specify			
2.4	COOLANT SYSTEM : If Providing then details should be Submitted by the Vendor				
2.4.1	Recirculating Type Flood Coolant System with nozzles around spindle with all accessories shall be provided, Selection of all the variants shall be through program and push buttons provided on the Operator's panel as well,	vendor to confirm			
2.4.2	Coolant collection and recirculation system should be leakproof & perfect to avoid any spillage on shop floor, trenches for cables & foundation pit of the machine etc.	vendor to confirm			
2.4.3	Coolant Flow Diagram showing filters, pumps, valves, tanks etc. to he submitted with the offer.	vendor to confirm			
2.4.4	Pressure & rate of flow of coolant for different variants should be furnished in the offer. The Pressure should be sufficient for the coolant to reach the grinding wheel/grinding edge at full	vendor to confirm			

2.4.5	Coolant Tank Capacity	vendor to specify			
2.4.6	Coolant pump & motor details for all variants of coolant system are to be submitted with the offer.	vendor to confirm			
2.5	CONSTRUCTION:				
2.5.1	Video images on CD including hard copy explaining the technical features / Literature with photographs, drawings explaining the technical features should be provided alongwith the supply	Vendor to confirm / Specify			
3.0	SCOPE OF SUPPLY				
	(1) Portable broken tool removing machine (2) Electromagnetic base with portable head and power cable 15 m (3) Consumable copper electrode(i) Dia 2X50 mm - 25 numbers (ii) Dia 5X150 mm - 25 numbers (iii) Dia 6 X150 mm - 25 numbers (iv) Dia 8 X150 mm - 25 numbers	Vendor to confirm			
4.0	ELECTRICAL SYSTEM :				
4.1	415V $\pm 10\%$, 50HZ ± 1.5 HZ, 3 Phase AC (3 wire system with out neutral) Power Supply Source will be provided by BHEL at a single point near the Portable Broken Tool Removal Machine , as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the Portable Broken Tool Removal Machine shall be the responsibility of vendor. Requirement of grounding/earthing with required material details is to be informed by vendor well in advance so that same could be incorporated during construction of foundation.	vendor to specify			
4.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized	vendor to confirm			
4.3	All electrical & electronic cabinets & panels if required should be dust and vermin proof.	vendor to confirm			
4.4	All electrical components in the cabinets if required should be mounted on DIN Rail	vendor to confirm			
4.5	All electrical and electronic panels including operator's panel if required should be provided with fluorescent lamps for sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters/receptacles should have compatibility with Indian equivalents.	vendor to confirm			
4.6	Vendor should ensure the proper earthing if required for the surface equipments and its	vendor to confirm			
5.0	SAFETY ARRANGEMENTS:	vendor to confirm			
	Following safety features in addition to other standard safety features should be provided on the Portable Broken Tool Removal Machine if required.				

5.1	1. Portable Broken Tool Removal Machine should have adequate and reliable safety interlocks / devices to avoid damage to the equipment , workpiece and the operator due to the malfunctioning or mistakes. Portable Broken Tool Removal Machine functions should be continuously monitored and alarm / warning indications should be available.	vendor to confirm			
5.2	2. A detailed list of all alarms / indications provided on machine should be submitted by the	vendor to confirm			
5.3	3. All the cables etc. on the Portable Broken Tool Removal Machine should be well supported and protected.	vendor to confirm			
5.4	4. Emergency Switches at suitable locations as per International Norms are to be provided.	vendor to confirm			
6.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE :				
	Special tools and equipment required for erection of the Portable Broken Tool Removal Machine shall be brought by the vendor. Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc.for operation and maintenance of the equipment should be supplied. List of such tools should be submitted with offer	vendor to confirm			
7.0	SPARES & SERVICES:				
7.1	Vendor to confirm that complete list of spares for Portable Broken Tool Removal Machine and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the tester.	vendor to specify			
7.2	Itemise breakup of mechanical, hydraulic,pneumatic, electrical and electronic spares used on the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares.	vendor to confirm			
7.3	All types of spares for total machine and accessories should be available for atleast ten years after supply of the machine. If machine or control is likely to become obsolete in this period,the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required	vendor to confirm			
7.4	Recommended set of spares-for all attachments are to be offered with details.	vendor to confirm			
7.5	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	vendor to confirm			

8.0	DOCUMENTATION : Five sets of following documents (Hard copies) in English language should be supplied along with the Portable Broken Tool Removal Machine.	vendor to confirm			
8.1	Operating manuals of Portable Broken Tool Removal Machine manual	vendor to confirm			
8.2	Maintenance manuals for Portable Broken Tool Removal Machine	vendor to confirm			
8.3	Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable.	vendor to confirm			
9.0	TRAINING:				
	BHEL Persons should be trained at BHEL Works (a) Use of Portable Broken Tool Removal Machine Features, & Other related operations used on the Job & supplied accessories etc. (b) Mechanical maintenance for Portable Broken Tool Removal Machine & other supplied equipments. (c) Operation of the Portable Broken Tool Removal Machine including applications & other supplied equipments.	vendor to confirm			
	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel.	vendor to confirm			
10.0	PRE- DISPATCH INSPECTION				
10.1	After manufacturing the machine, vendor will call for pre dispatch inspection of machine at vendor place. All its features will be demonstrated by Vendor as per enquiry in presence of BHEL Engineer upto the satisfaction of BHEL Engineer.	Vendor to confirm			
11.0	ERECTION & COMMISSIONING				
11.1	Special Tools, Tackles, instruments and other necessary equipment if required to carry out all above activities should be brought by the supplier.	vendor to confirm			
11.2	Commissioning spares, required for commissioning of the Portable Broken Tool Removal Machine within stipulated time, shall be brought by the supplier on returnable basis.	vendor to confirm			
11.3	Portion, if any, of the Portable Broken Tool Removal Machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colours of paint used.	vendor to confirm			

11.4	Schedule of Erection and Commissioning shall be submitted with the offer. Erection and Commissioning is in total scope of Vendor	vendor to confirm			
11.5	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	vendor to specify			
12.0	AMBIENT CONDITIONS & THERMAL STABILITY :				
12.1	Weather conditions are tropical, Atmosphere may be dust laden during some part of the year. . Max. temperature variation is up to 25 deg Celsius in 24 hours. (Vendor to confirm that Portable Broken Tool Removal Machine is suitable for above and details of provisions on the equipment for the same are to be furnished by Vendor)	vendor to confirm			
12.2	Thermal Stability of the complete Portable Broken Tool Removal Machine keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the machine should be ensured by vendor. (Vendor to confirm that equipment is suitable for above and details of provisions on the equipment for the same should be furnished by Vendor)	vendor to confirm			
12.3	The Portable Broken Tool Removal Machine, including attachments and accessories, should be suitable for 24 hrs. continuous operation to its full capacity for 24 hour a day and 7 days a week throughout. Vendor to ensure and confirm the same.	vendor to confirm			
13.0	PROVEOUT OF BHEL COMPONENTS :				
13.1	Vendor shall be responsible for any deviation/rejection in proveout component due to any equipment error malfunctioning of the equipment during proveout and also for the delay in measuring due to improper recommended tooling etc. The cost of such deviation / rejection, if any, shall be refunded by the vendor to BHEL.	vendor to confirm			
14.0	Portable Broken Tool Removal Machine ACCEPTANCE: (Tests/Activities to be Performed by Vendor)	vendor to confirm			
14.1	Demonstration of all features of the Portable Broken Tool Removal and all Accessories.	vendor to confirm			
15.0	Test to be carried out at BHEL works while commissioning the equipment :	vendor to confirm			
15.1	Demonstration of all features of the machine, & all accessories to the satisfaction of BHEL for their efficient and effective use.	vendor to confirm			
15.2	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	vendor to confirm			

15.3	Training of BHEL machine operators in operation of complete machine & accessories etc by the supplier's experts / engineers during their stay at BHEL works	vendor to confirm			
15.0	PACKING:				
15.1	Sea worthy & rigid packing for all items of complete machine, digital display System, all Accessories and other supplied items to avoid any damage/loss in transit. When machine is despatched in containers, all small loose items shall be suitably packed in boxes	vendor to confirm			
16.0	GUARANTEE :				
16.1	24 months from the date of acceptance of the machine at BHEL,Bhopal..	vendor to confirm			
17.0	GENERAL : The vendor should submit the following information:				
17.1	Machine Model	Vendor to specify			
17.2	Total connected load (KVA):	Vendor to specify			
17.3	Floor area required (Length, Width, Height) for complete machine & accessories	Vendor to specify			
17.4	Painting of Machine/ Electrical Panels	vendor to confirm			
17.5	Total weight of the machine	Vendor to specify			
17.6	Vendor to submit, along with offer, the reference list of customers where similar machines have been supplied mentioning the customer, Machine Model, major specifications of the supplied machine, Year of Supply etc	vendor to confirm			
17.7	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	vendor to confirm			
18.0	QUALIFYING CONDITIONS :				
18.1	Only those vendors (OEM or Authorized dealers) , who have supplied and commissioned at least one Portable Broken Tool Remover Machine for similar applications in the past ten years and such machine is presently working satisfactorily for more than one year after commissioning , should quote. PO can be from OEM or from any authorized dealer of OEM , of which vendor is quoting.The following information is to be submitted by the vendor about the companies where similar machines have been supplied. This is required from all the vendors for qualification of their offer.	vendor to confirm			
18.2	1. Name of the customer / company where similar machine is installed.	vendor to specify			
18.3	2. Complete postal address of the customer.	vendor to specify			
18.4	3. Year of commissioning.	vendor to specify			

18.5	4. Application for which the machine is supplied with details of accuracies achieved on the job.	vendor to specify			
18.6	5. Name and designation of the contact person of the customer.	vendor to specify			
18.7	6. Phone, FAX no. and email address of the contact person of the customer.	vendor to specify			
18.8	7. Performance certificate from the customers regarding satisfactory performance of machine supplied to them	vendor to specify			
18.9	8. Average annual T/O of the OEM for the last 3 financial years should be at least Rs. 10 lakhs. For this , vendor to submit , Profit & loss statement for last 3 financial year 2016-17, 2017-18 & 2018-19 to be provided./ OR Vendor submit any PO and Invoice (if supplied item outside BHEL Bhopal) of value equal to 10 lacs in last 3 years.	vendor to specify			
18.10	9. BHEL has right to confirm the performance from the user , where such machine is supplied by either by OEM or its authroized dealer. In case of negative feedback either from BHEL or other industry , BHEL has right to Reject the technical bid of Vendor	vendor to confirm			